

IN THE CLAIMS

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Claims 1-21 (cancelled)

Claim 22 (new): A method for producing composite materials, such as thermoplastic resins with mineral and/or vegetable fillers, characterized in that it consists in feeding a mineral and/or vegetable filler, preheating said filler, feeding a melted thermoplastic resin onto said filler, introducing the mixture of said filler and said thermoplastic resin in an extruder, subjecting the mixture to high compression, producing a high partial vacuum, and compressing the mixture in an extrusion head, out of which the material to be subjected to subsequent treatments flows.

Claim 23 (new): The method according to claim 22, characterized in that said mineral and/or vegetable filler is heated to a temperature from 20 to 160°.

Claim 24 (new): The method according to claim 22, characterized in that said resin is present in a percentage from 25 to 70% of the material being obtained and said filler is present in a percentage from 75 to 30%.

Claim 25 (new): The method according to claim 22, characterized in that degassing is performed during the high compression step.

Claim 26 (new): The method according to claim 22, characterized in that said thermoplastic resin mixed with said filler is introduced in a mixer that is adapted to increase the exposed surface of said mixture for degassing and wetting the filler.

Claim 27 (new): The method according to claim 22, characterized in that a second degassing is performed when said high partial vacuum

step is performed.

Claim 28 (new): The method according to claim 22, characterized in that it provides for the introduction of processing waste in a maximum quantity of 30%.

Claim 29 (new): The method according to claim 22, characterized in that said filler is formed by powder or fibers.

Claim 30 (new): The method according to claim 29, characterized in that said fibers of said filler have a length from 3 to 20 mm.

Claim 31 (new): The method according to claim 22, characterized in that said extrusion screw, in the step for melting the thermoplastic resin, has an axial extension of substantially 20 diameters, and the second compression and partial vacuum portion has a length of substantially 14 diameters including the end portion for final extrusion.

Claim 32 (new): The method according to claim 22, characterized in that said thermoplastic resin is fed by means of an extrusion screw that is provided in axial alignment with the extruder, at least part of said melted thermoplastic resin being introduced in said filler before introduction in said extruder, the remaining part being introduced in said extruder.

Claim 33 (new): The method according to claim 22, characterized in that said melted thermoplastic resin is fed by an extrusion screw that is separate with respect to the extrusion screw for processing the mixture of thermoplastic resin and filler.

Claim 34 (new): An apparatus for producing composite materials such as thermoplastic resins with mineral and vegetable fillers, characterized in that it comprises an extrusion screw that has a

first part for plasticizing and melting a thermoplastic resin, said extruder being connected, at the end of said first part, to the end portion of a feeder of mineral and/or vegetable fillers for mixing the filler and the thermoplastic resin before introduction in the extruder.

Claim 35 (new): The apparatus according to claim 34, characterized in that said extrusion screw has a second portion that forms a region of high compression and then a partial vacuum region.

Claim 36 (new): The apparatus according to claim 35, characterized in that it comprises, between said high compression region and said high partial vacuum region, a mixer that is adapted to increase the exposed surface of said mixture.

Claim 37 (new): The apparatus according to claim 36, characterized in that said mixer has a plurality of channels that are arranged substantially parallel to the axial direction and form a reduced cross-section with respect to the useful upstream cross-section for feeding the material.

Claim 38 (new): The apparatus according to claim 34, characterized in that it comprises an auxiliary inlet for introducing a second thermoplastic resin.

Claim 39 (new): The apparatus according to claim 34, characterized in that it comprises, at the outlet of said extrusion head, a profile head for obtaining finished articles.

Claim 40 (new): The apparatus according to claim 34, characterized in that it comprises, at the outlet of said extrusion head, a sheet head, downstream of which calendering rollers are arranged.

Claim 41 (new): The apparatus according to claim 34, characterized

in that comprises, downstream of said extrusion head, a press with molds for forming manufactured articles.

Claim 42 (new): The apparatus according to claim 34, characterized in that it comprises a spaghetti head for producing granules.